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Notes on the tribe Osminiini (Lepidoptera, Sesiidae) from Vietnam, with descriptions of new taxa

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Abstract A new genus, *Pyrophleps* Arita & Gorbunov, gen. nov. (type species: *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov.) and five new species, namely *Vietomelittia bantanakai* Arita & Gorbunov, sp. nov., *Aschistophleps longipoda* Arita & Gorbunov, sp. nov., *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov., *P. vitripennis* Arita & Gorbunov, sp. nov., and *P. cucphuonganae* Arita & Gorbunov, sp. nov. are described and figured from North Vietnam. The genus *Vietomelittia* Gorbunov, 1988 (type species: *Vietomelittia soljanikovi* Gorbunov, 1988) is restored from a synonym of *Heterosphecia* Le Cerf, 1916 (type species: *Heterosphecia myticus* Le Cerf, 1916=*Aschistophleps melissoides* Hampson, 1893). Redescription of the genus *Aschistophleps* Hampson, 1893 (type species: *Aschistophleps lampropoda* Hampson, 1893) and *Vietomelittia soljanikovi* Gorbunov, 1988 are provided.

Key words Lepidoptera, Sesiidae, new genus, new species, Oriental Region, Vietnam, taxonomy.

The present paper is based on the rather abundant material of clearwing moths collected in North Vietnam by Japanese lepidopterists for a few recent years. It continues our investigations of Oriental Sesiidae, being restricted to the tribe Osminiini. Other taxa of the Vietnam Sesiidae are currently under study and will be put on record elsewhere.

Arita and Gorbunov (1995) revised the genus *Heterosphecia* Le Cerf, 1916, and synonymized the genus *Vietomelittia* Gorbunov, 1988 with *Heterosphecia*, because at that time they believed the morphological differences between the type species of these genera are distinctions of species level only. After restudy of the type species of these genera and a revision of some additional recent material, we have come to a conclusion that the taxon *Vietomelittia* is a distinct genus, not a junior synonym of *Heterosphecia*. So, we restore it to the full genus level. In addition, we describe one more species for this genus, *Vietomelittia bantanakai* Arita & Gorbunov, sp. nov. herein. Besides that, we erect one new genus, *Pyrophleps* Arita & Gorbunov, gen. nov., which superficially is very similar to *Aschistophleps*, but differs from it by the conformation of the hind leg tuft and male genitalia. Also we describe four new species, namely *Aschistophleps longipoda* Arita & Gorbunov, sp. nov., *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov., *P. vitripennis* Arita & Gorbunov, sp. nov., and *P. cucphuonganae* Arita & Gorbunov, sp. nov.

All specimens examined or cited herein are kept in the following collections abbreviated in the text as follows:

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CHR: Collection of Hans Riefenstahl, Hamburg, Germany
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COGM: Institute for Problems of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia.
MNHP: Muséum National d'Histoire Naturelle, Paris, France.
NSMT: Department of Zoology, National Science Museum, Tokyo, Japan.
ZMUN: Zoological Laboratory, Meijo University, Nagoya, Japan.

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Vietomelittia Gorbunov, **gen. rev.**

Vietomelittia Gorbunov, 1988: 193. Type species: *Vietomelittia soljanikovi* Gorbunov, 1988, by original designation.
Heterosphecia: Arita & Gorbunov, 1995: 132 (*part. nec* Le Cerf, 1916).

Redescription. Medium-sized, slightly robust, hind leg tufted clearwing moths with alar expanse 17–25 mm. Head with antenna strongly clavate, without cilia in male; frons smooth-scaled; labial palpus long, turned-up, somewhat exceeding upper margin of frons, with apprised scales ventrally; proboscis long, well-developed, functional; vertex with setaceous and hair-like scales, slightly overlapping dorsal margin of frons; occipital fringe with hair-like scales dorsally and short setaceous scales laterally. Thorax smooth-scaled, with admixture of short hair-like scales dorsally, posteriorly metepimeron and metameron with hair-like scales. Legs with fore femur, tibia and basal tarsomere tufted with elongated scales posteriorly; mid tibia and two basal tarsomeres tufted with elongate scales; hind tibia and three basal tarsomeres with a tuft of elongated pointed scales. Abdomen smooth-scaled, anal tuft small. Forewing with anterior transparent area divided transversally into two narrow longitudinal stripes; veins R_1 and R_2 parallel; vein R_5 missing (probably confluent with R_4) (Fig. 9). Hindwing transparent, but distally densely covered with brownish semi-hyaline scales; discal spot narrow, reaching vein M_3; vein M_2 arising from about middle of cross-vein; vein M_3 arising from somewhat before lower angle of cell; distance between base of veins CuA_1 and M_3 about as long as that between base of vein M_3 and cross-vein; vein CuP slightly sclerotized basally; vein 1A well-developed, issuing from basal third of vein 2A; veins 2A and 3A short, fused distally (Fig. 9). Male genitalia (Figs 12a–d, 13a–d) with tegumen-uncus complex small; uncus short, entirely and densely covered with short hair-like setae; gnathos narrow and short; valva strongly turned-up, narrowed distally, mostly covered with long hair-like setae; saccus short, rounded basally, about as long as vinculum; aedeagus about 1.5–2.0 times as long as length of valva; vesica with small, numerous, tile-shaped cornuti. Female genitalia unknown.

Differential diagnosis. Superficially the species of the genus are somewhat similar to those of *Heterosphecia* Le Cerf, 1916 (type species: *Heterosphecia myticus* Le Cerf, 1916=*Aschstophleps melissoides* Hampson, 1893), but they can be distinguished by the less robust body. Besides that, *Vietomelittia* differs from *Heterosphecia* by the structure of the labial palpus (flattened dorso-ventrally in the genus compared) and, what is more important, by the conformation of the male genitalia (uncus narrowly covered with rather short hair-like setae on ventro-apical margin; valva quadrangular; saccus slightly bifurcate basally; *cp.* Figs 12a–d and 13a–d with figs 2–4 in Arita & Gorbunov, 1995). From *Akaisphecia* Gorbunov & Arita, 1995 (type species: *Akaisphecia melanopuncta* Gorbunov & Arita, 1995), this genus

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is distinguishable by the background coloration of the body (red-orange in *Akaisphecia*), by the structure of the hind leg tuft (hind tibia and tarsus entirely covered with elongated scales) and 8th tergite of the abdomen (with a double, spiraling, filiform appendix in the genus compared; see figs 4 and 5 in Gorbunov & Arita, 1995*a*), and by the male genitalia (uncus oblong, valva quadrangular in *Akaisphecia*; *cp.* Figs 12a–d and 13a–d with fig. 3a–d in Gorbunov & Arita, 1995*a*). From *Melanosphecia* Le Cerf, 1916 (type species: *Melanosphecia atra* Le Cerf, 1916), *Vietomelittia* can be separated by the presence of transparent areas of the forewing (entirely opaque in the genus compared) and by the structure of the hind leg tuft (hair-like scales only on apical half of tibia and two basal tarsomeres in *Melanosphecia*). From *Aschistophleps* Hampson, 1893 (type species: *Aschistophleps lampropoda* Hampson, 1893) and *Pyrophleps* Arita & Gorbunov, gen. nov. (type species: *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov.), this genus is easily distinguishable by the wing venations, structure of the hind leg tuft and by the conformation of the male genitalia (*cp.* corresponding descriptions and figures herein).

Biology. The larval biology is unknown. The species of the genus fly in April, July and September, possible being bivoltine.

Composition. At present, we include the following two species in this genus: *V. soljanikovi* Gorbunov, 1988, comb. rev. (the type species), and *V. bantanakai* Arita & Gorbunov, sp. nov.

Range. Oriental Region: Vietnam, Laos, China.

Vietomelittia soljanikovi Gorbunov, **comb. rev.** (Figs 1–2, 9, 12a–d)

Vietomelittia soljanikovi Gorbunov, 1988: 193, figs 1–2. Type locality: Vietnam, Baetkhai Prov., Kuangtchu. Holotype ♂, in COGM.
Heterosphecia soljanikovi: Arita & Gorbunov, 1995: 137, figs 1, 5–7, 16.

Redescription. Male (Fig. 1). Alar expanse 24.3 mm; body length 13.5 mm; forewing 10.3 mm; antenna 6.4 mm.

Head: antenna dorsally dark brown to black with dark green-purple sheen, ventrally light brown, densely covered with dirty yellow scales at distal margin of each joint; scapus dark brown to black with bronzed-green sheen dorsally and white ventrally; frons dark gray-brown with bright bronzed-purple sheen, with a narrow white stripe laterally; labial palpus internally white with a few fire-red scales; externally basal joint dark brown to black with green-bronzed sheen; mid joint black with green-bronzed sheen, with admixture of white scales, ventrally mid joint white with admixture of fire-red scales; apical joint mixed with black, white and a few red scales; vertex black with admixture of white, long, setaceous scales medially; occipital fringe dorsally white with a few dirty yellow scales, laterally white.

Thorax: patagia dark brown to black with dark purple sheen, with a small spot of white and a few dirty yellow scales laterally; tegula dark brown to black with bronzed sheen, with admixture of individual, white, narrow scales anteriorly, externally and internally; mesothorax dark brown to black with green-bronzed sheen, with a narrow, short, white stripe anterior-medially, with a few dirty orange scales anteriorly, with a few white scales distally and with a few dirty orange scales posterior-laterally; besides that, tegula and mesothorax covered with white, short, hair-like scales; metathorax dark brown to black with purple-bronzed sheen, with a tuft of black and a few white hair-like scales laterally; thorax laterally dark brown to black with bronzed-purple sheen, with a narrow dirty yellow-orange stripe

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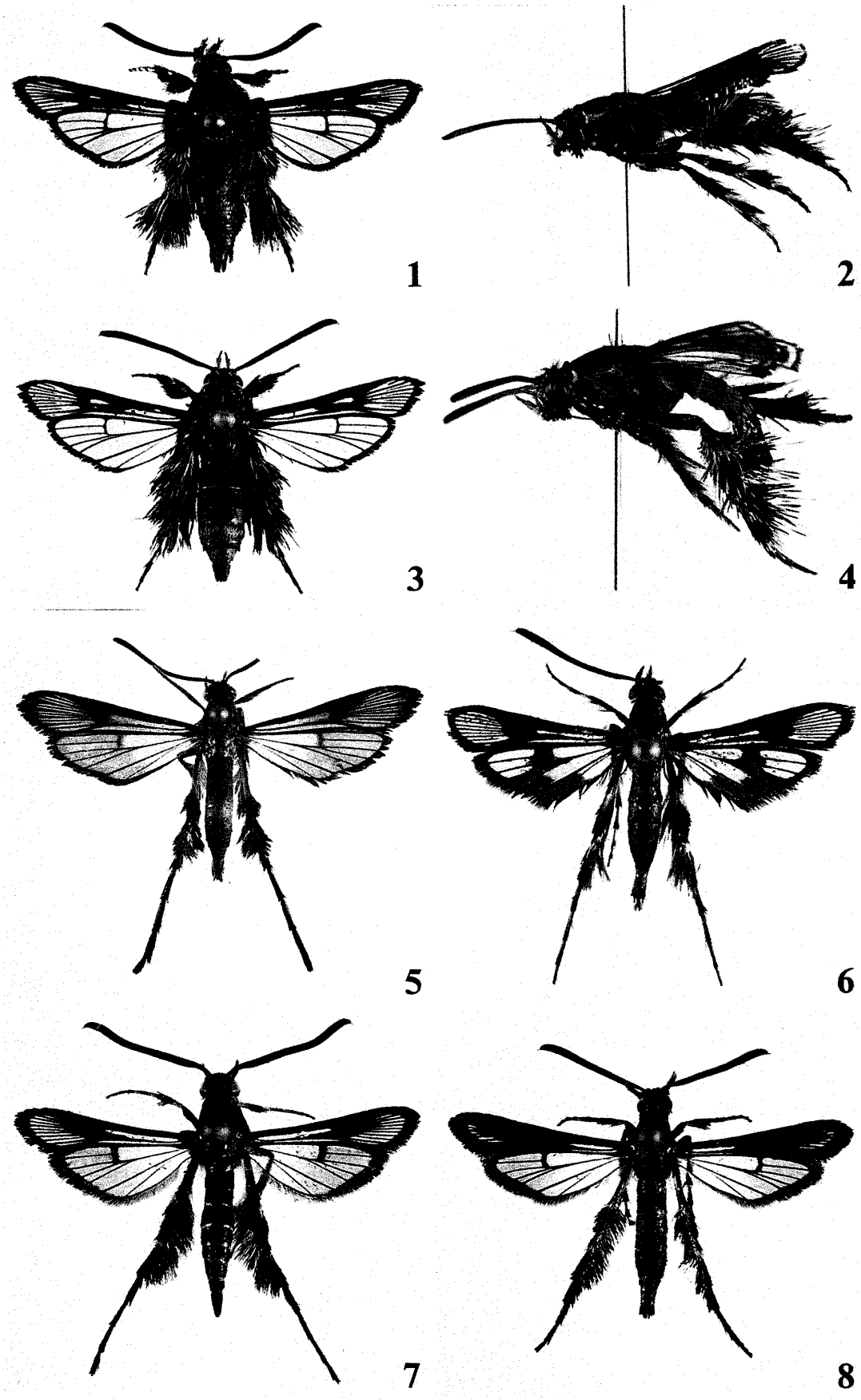

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dorsally and with admixture of pale cream to pale yellow scales medially; posteriorly metaepimeron and metameron dark gray-brown with green-purple sheen, densely covered with long, hair-like, white and a few dark brown scales.

Legs: neck plate dark brown to black with bronzed-green sheen; fore coxa dark brown to black with green-violet sheen, with a narrow fire-red stripe exterior-basally, with a small spot of white and a few fire-red scales exterior-basally and with a narrow stripe of white and a few fire-red scales distally; fore femur dark brown to black with bronzed-green sheen, externally densely mixed with white and dirty orange scales; fore tibia dark brown to black with bronzed sheen, with admixture of white and dirty yellow-orange scales medially; fore basal tarsomere dark brown to black with bronzed-green sheen, with a small white spot dorso-basally; remaining tarsomeres ventrally pale yellow, dorsally dirty yellow-orange with a few dark brown scales; mid coxa dark brown to black with bronzed-purple sheen anteriorly and white with golden hue posteriorly; mid femur externally dark brown with bright bronzed-green sheen, with admixture of white and dirty yellow-orange scales medially and with a few white hair-like scales posterior-basally; mid tibia dark brown to black with strong anthracite sheen, with a narrow ring of white and fire-red scales medially and with white and a few fire-red scales dorso-distally; spurs white internally and dark brown with purple sheen externally; basal mid tarsomere externally dark brown with green-purple sheen, with a small white spot basally; internally mixed with white, fire-red and dark brown scales; externally tarsomeres 2 and 3 each dark brown to black with green-bronzed sheen, with a narrow white stripe basally, internally white with admixture of fire-red scales; remaining tarsomeres dark brown with green-bronzed sheen exterior-dorsally and yellow to pale yellow interior-ventrally; hind coxa dark brown with green-blue sheen with a few white scales with golden hue medially; hind femur dark brown with bronzed-green sheen, with admixture of white scales exterior-basally and with white hair-like scales posterior-basally; hind tibia dark brown to black with bronzed-blue sheen, densely mixed with white and fire-red scales externally and dorsally; internal spurs of both pairs white, both external spurs dark brown with greenish sheen externally and white internally; two hind basal tarsomeres dark brown with bronzed-green sheen, mixed with white and fire-red scales; basal tarsomere with a small white spot baso-ventrally; third tarsomere dark brown to black with green-bronzed sheen, with a narrow white ring basally; two apical tarsomeres dark brown to black with green-bronzed sheen.

Abdomen: dorsally dark brown to black with strong bronzed-purple sheen; tergite 2 with admixture of dirty yellow and white scales laterally and with a narrow white stripe posterior-laterally; tergite 3 with a few dirty yellow scales medio-laterally; tergite 4 with a few dirty yellow scales laterally; tergites 4–7 each dark gray-brown with strong greenish sheen on posterior margin; ventrally dark brown with bronzed sheen; all sternites with admixture of yellow-orange scales medially and with a narrow, white to pale yellow distal margin; anal tuft small, dark brown with bronzed-green sheen.

Forewing: dorsally costal margin, Cu-stem, anal margin, discal spot and veins within external

Figs 1–8. Moths of Osminiini. 1. *Vietomelittia soljanikovi* Gorbunov, 1988, ♂. Alar expanse 24.3 mm (ZMUN). 2. *Ditto*, ♂, lateral view (ZMUN). 3. *Vietomelittia bantanakai* Arita & Gorbunov, sp. nov., holotype, ♂. Alar expanse 24.0 mm (ZMUN). 4. *Ditto*, ♂, lateral view (ZMUN). 5. *Aschistophleps longipoda* Arita & Gorbunov, sp. nov., holotype, ♂. Alar expanse 24.2 mm (ZMUN). 6. *Pyrophleps cucphuonganae* Arita & Gorbunov, sp. nov., holotype, ♂. Alar expanse 16.2 mm (ZMUN). 7. *Pyrophleps vitripennis* Arita & Gorbunov, sp. nov., holotype, ♂. Alar expanse 18.9 mm (ZMUN). 8. *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov., holotype, ♂. Alar expanse 19.1 mm (ZMUN).

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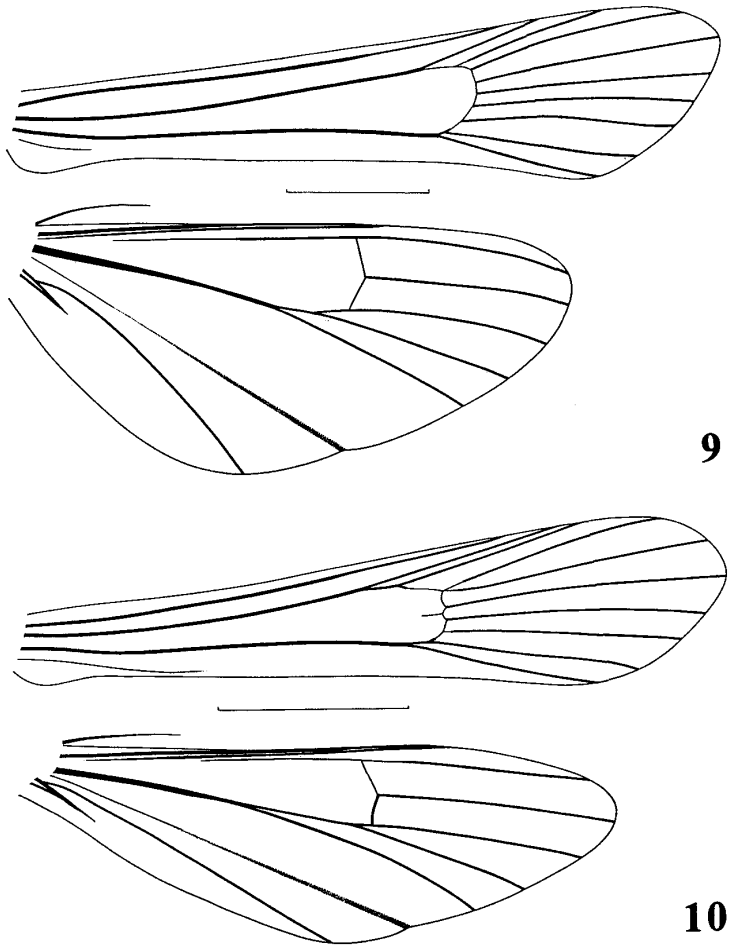

Figs 9–10. Wing venation of Osminiini. 9. *Vietomelittia soljanikovi* Gorbunov, 1988, ♂. Scale bar: 2.0 mm. 10. *Aschistophleps longipoda* Arita & Gorbunov, sp. nov., paratype, ♂. Scale bar: 2.0 mm.

transparent area dark brown to black with dark purple sheen; transparent areas well-developed, covered with hyaline scales with green-blue hue; ventrally dark brown to black with dark purple-violet sheen; anterior transparent area divided transversally into two cells (distal one small); external transparent area broad, divided into six cells, four of which between veins R_{4+5}–M_1, M_1–M_2, M_2–M_3, M_3–CuA_1 additionally divided severally into two cells by a very narrow longitudinal stripe; apical area very narrow, about as narrow as cilia; cilia dark brown with green-bronzed sheen.

Hindwing: transparent; veins and outer margin dark brown to black with dark purple sheen; discal spot narrow, dark brown to black with bronzed-green sheen, with light brown semi-hyaline scales at margins; outer margin narrow, about twice as narrow as cilia; cilia dark brown with bronzed-purple sheen with a few white hairs anally.

Male genitalia (genital preparation Nos GA-238 and 1757 YA) (Fig. 12a–d). Tegumen-uncus complex relatively short and broad; uncus entirely and densely covered with short hair-like setae; tegumen narrow and short; valva strongly turned-up, distinctly narrowed and rounded distally, mostly covered with long hair-like setae; saccus short, rounded basally, about as long as vinculum; aedeagus about twice as long as valva; vesica with small, numerous, tile-shaped cornuti.

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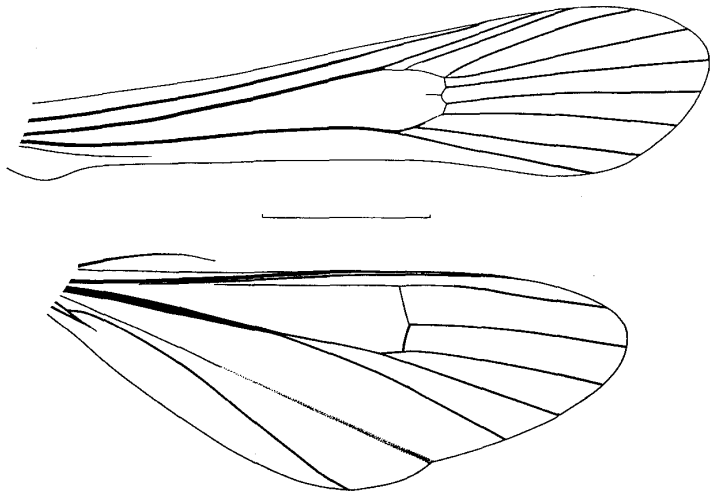

Fig. 11. Wing venation of *Pyrophleps nigripennis* Arita & Gorbunov, gen. et sp. nov., paratype, ♂. Scale bar: 2.0 mm.

Female. Unknown.

Individual variability. Coloration virtually constant, slightly variable only in individual size: alar expanse: 22.0–25.0 mm; body length 12.0–13.5 mm; forewing: 9.5–12.0 mm; antenna: 6.0–6.5 mm.

Differential diagnosis. From *V. bantanakai* Arita & Gorbunov, sp. nov., this species differs by the coloration of the thorax laterally (with a large orange to yellow-orange spot anteriorly in the species compared, *cp.* Fig. 2 with Fig. 4), abdomen (compare the corresponding descriptions herein) and forewing ventrally (with yellow and yellow-orange scales in *V. bantanakai* Arita & Gorbunov, sp. nov.). Besides that, these two species differ by the structure of the male genitalia (somewhat different shape and size of tegumen-uncus complex, valva and saccus; *cp.* Fig. 12a–d with Fig. 13a–d).

Bionomics. The host plant is unknown. Moths were collected during April to July. Majority of the males have been captured with synthetic sex attractants.

Habitat. Borders of subtropical forests and evergreen broad-leaved trees forest, glades, forest roads.

Distribution. Hitherto known from some localities in North Vietnam, Laos.

Material examined. ♂ (holotype), Vietnam, Baetkhai Prov., Kuangtchu, 15–20. IV. 1986, A. Gorokhov leg. (COGM); 1 ♂ (paratype), N. Vietnam, Vinh Phu Prov., Tchukhe, 31. VII. 1969, V. P. Soljanikov leg. (COGM); 1 ♂, N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 370 m, 28. IV. 1998, Y. Arita leg. (ZMUN) (Fig. 1); 1 ♂, same locality, 250 m, 24. IV. 1998, Y. Arita leg. (ZMUN) (Fig. 2); 1 ♂, same locality, 370 m, 24–26. V. 1995, M. Owada leg. (NSMT); 1 ♂, N. Vietnam, Vinh Phu Prov., Tam Dao, 1,100 m, 2. VI. 1997, Y. Arita leg. (ZMUN); 1 ♂, N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 250 m, 5. VI. 1997, R. Matsumoto leg. (ZMUN); 1 ♂, same locality, 370 m, 25. IV. 1998, Y. Arita leg. (ZMUN); 2 ♂, same locality, 370 m, 25. IV. 1998, R. Matsumoto leg. (ZMUN, COGM); 1 ♂, same locality, 370 m, 25. IV. 1998, B. Tanaka leg. (genital preparation Nos GA-238 and 1757 YA) (ZMUN); 4 ♂, same locality, 370 m, 26. IV. 1998, Y. Arita leg. (COGM); 1 ♂, same locality, 370 m, 28. IV. 1998, Y. Arita leg. (ZMUN); 3 ♂, same locality, 25–26. IV. 1998, Riefenstahl & Wagenblass leg. (CHR); 4 ♂, same locality, 14. IX. 1998, and 5 ♂, 3. V. 1999,

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M. Ikeda leg. (CMI); 1 ♂, Laos, Vientiane Prov., Phou Kou Khouei, 800 m, 12–13. IV. 1965, J. L. Gressit leg. (BPBM).

Vietomelittia bantanakai Arita & Gorbunov, **sp. nov**. (Figs 3–4, 13a–d)

Description. Male (holotype) (Fig. 3). Alar expanse 24.0 mm; body length 12.8 mm; forewing 10.2 mm; antenna 6.4 mm.

Head: antenna dorsally dark brown to black with dark green-blue sheen, ventrally light brown, densely covered with yellow scales; scapus dark brown to black with purple sheen dorsally and white ventrally; frons dark brown with green-bronzed sheen, with a narrow white stripe both laterally and ventrally; labial palpus internally and dorsally white with admixture of individual dark brown scales; externally basal joint dark brown with bronzed-green sheen, mid joint dark brown with bronzed-purple sheen, with admixture of a few white scales, apical joint mixed with white and dark brown scales; vertex mixed with black and white, long, setaceous scales; occipital fringe entirely white.

Thorax: patagia dark brown to black with dark purple-violet sheen, with a few white and dirty yellow scales laterally; tegula dark brown to black with bronzed-purple sheen, with admixture of individual, white, narrow scales and with a few dirty yellow setaceous scales distally; mesothorax dark brown to black with purple-green sheen, with a narrow, short, white stripe anterior-medially and with a few white scales posterior-distally; besides that, tegula and mesothorax covered with white, short, hair-like scales; metathorax dark brown to black with bronzed sheen, with a tuft of dark brown and dirty yellow hair-like scales laterally; thorax laterally dark brown with bronzed-green sheen, with a large orange to yellow-orange spot anteriorly; posteriorly metaepimeron and metameron dark gray-brown with bronzed sheen, covered with white, long, hair-like scales.

Legs: neck plate dark brown to black with bronzed-green sheen, with admixture of white scales distally; fore coxa dark brown with bronzed-purple sheen, with admixture of white and dirty orange scales exterior-basally, externally and distally; fore femur internally dark brown to black with purple sheen, externally dark brown to black with bronzed-green sheen, with admixture of dirty orange scales medially, and with white scales posterior-distally; fore tibia dark brown to black with purple-green sheen, with a small, elongated, white spot dorso-subbasally, and with a small white spot medially; fore tarsus ventrally dark orange, dorsally narrowly dark brown to black with purple-green sheen, with a small white spot at base of second tarsomere; mid coxa whitish to pale cream with bronzed hue; mid femur internally dark gray-brown with bronzed-purple sheen, with admixture of yellow and pale orange scales anteriorly; externally dark brown with bronzed-green sheen, with a few white hair-like scales at base posteriorly; mid tibia dark brown to black with purple-bronzed sheen, with yellow scales in basal half ventrally and with a small elongated white spot exterior-medially; spurs white with admixture of dark brown and dirty orange scales externally; mid tarsus dark brown to black with purple-bronzed sheen, basal tarsomere with a broad ring of white and dirty orange scales at base; second and third tarsomeres each with a small spot of white and dirty orange scales exterior-ventrally; remaining tarsomeres with a few dirty orange scales ventrally; hind coxa dark gray-brown with green-purple sheen anteriorly and whitish to pale cream with golden hue posteriorly; hind femur internally dark gray-brown with bronzed-purple sheen; externally dark brown with bronzed-green sheen, with a few white hair-like scales at base posteriorly; hind tibia covered with dark brown with bronzed-purple sheen, white and dirty orange scales, with a small white spot slightly exterior-basally of base of mid

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spurs; spurs white with admixture of dark brown and dirty orange scales externally; three hind basal tarsomeres covered with dirty dark brown with purple sheen, orange and a few white scales; remaining tarsomeres dark brown to black with purple-green sheen.

Abdomen: dorsally dark brown to black with purple sheen; tergites 2–4 each densely covered with dirty yellow scales laterally; tergites 2 and 7 each with admixture of individual dirty yellow and white scales anteriorly; tergite 5 with a broad yellow stripe medially; tergite 2 with a narrow, white distal margin; tergites 4–7 each with a narrow, dark gray-brown with purple-green sheen distal margin; ventrally dark gray-brown with bronzed-green sheen; all sternites laterally with an elongated spot of yellow and white scales; sternites 1+2, 3–5 each with admixture of yellow and white scales medially; all sternites with a narrow, white distal margin; anal tuft small, dark brown with greenish sheen, with a few white scales laterally.

Forewing: dorsally posterior-basally with a few white scales; costal margin, Cu-stem, anal margin, discal spot and veins within external transparent area dark brown to black with dark purple sheen; distally costal margin and veins CuA_1 and CuA_2 with a few white and yellow scales; ventrally dark brown to black with dark purple-violet sheen, densely mixed with yellow scales on costal margin and with yellow-orange scales on transversal stripe of anterior transparent area; transparent areas well-developed; anterior and external transparent areas covered with hyaline scales with bronzed hue, posterior transparent area covered with hyaline scales with electric green-blue hue; anterior transparent area divided transversally into two cells (distal one small); external transparent area broad, divided into six cells, five of which between veins R_3–R_{4+5}, R_{4+5}–M_1, M_1–M_2, M_2–M_3, M_3–CuA_1 additionally divided severally into two cells by a very narrow longitudinal stripe; apical area very narrow, about as narrow as cilia; cilia dark brown with green-bronzed sheen.

Hindwing: transparent; veins and outer margin dark brown to black with bronzed-green sheen; discal spot narrow, dark brown to black with dark purple sheen, with light brown semi-hyaline scales at margins; outer margin narrow, about twice as narrow as cilia; cilia dark brown with bronzed-purple sheen with a few white hairs anally.

Male genitalia (paratype, genital preparation Nos GA-232 and 1751 YA) (Fig. 13a–d). Tegumen-uncus complex relatively long and narrow; uncus entirely and densely covered with short hair-like setae; tegumen narrow and short; valva strongly turned-up, slightly narrowed and rounded distally, mostly covered with long hair-like setae; saccus short, nearly flat basally, about as long as vinculum; aedeagus about 1.5 times as long as length of valva; vesica with small, numerous, tile-shaped cornuti.

Female. Unknown.

Individual variability. Slightly varying in the number of the dirty yellow scales on the abdomen, whitish to pale cream scales with golden hue on the hind coxa and light brown semi-hyaline scales on the discal spot of the hindwing. Besides this, this new species is rather variable in individual size: alar expanse 16.0–24.0 mm; body length 8.7–12.8 mm; forewing 7.2–10.2 mm; antenna 5.9–6.4 mm.

Differential diagnosis. From *V. soljanikovi*, *V. bantanakai* Arita & Gorbunov, sp. nov. easily distinguishable by various combinations of important characters, both external (coloration of the thorax, abdomen, forewing ventrally) and genitalia (compare the corresponding descriptions, the "Differential diagnosis" for *V. soljanikovi* and figures herein).

Bionomics. The host plant is unknown. Moths were netted in April, June, July and September. It is possible this new species has two generations per a year. Majority of the

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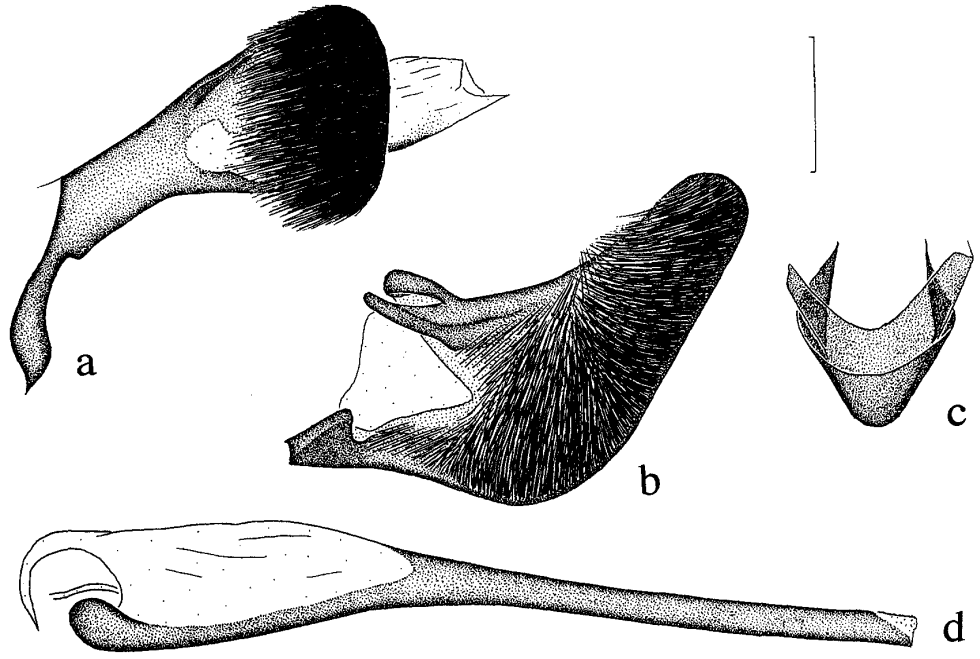

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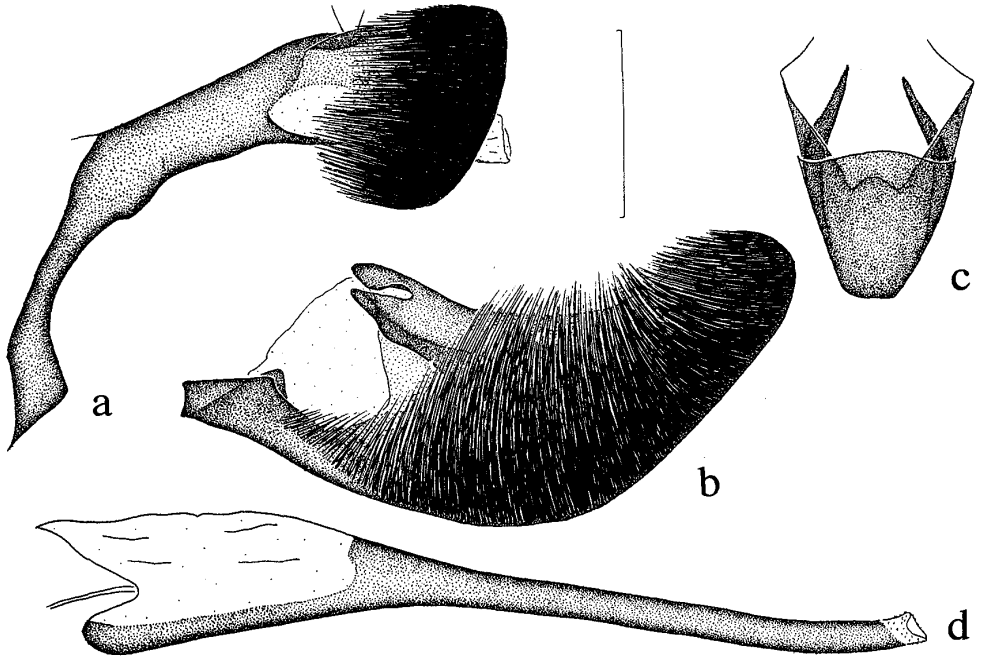

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Figs 12–13. Male genitalia of *Vietomelittia* spp. 12. *V. soljanikovi* Gorbunov, 1988, (genital preparation Nos GA-238 and 1757 YA) (a: tegumen-uncus complex, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm. 13. *V. bantanakai* Arita & Gorbunov, sp. nov., paratype (genital preparation Nos GA-232 and 1751 YA) (a: tegumen-uncus complex, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm.

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males have been captured with synthetic pheromones.

Habitat. Borders of tropical forests, glades, forest roads.

Distribution. North Vietnam, China.

Material examined. Holotype, ♂ (Fig. 3), N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 370 m, 26. IV. 1998, Y. Arita leg. (ZMUN). Paratypes. 1 ♂ (Fig. 4), same locality, 250 m, 24. IV. 1998, Y. Arita leg. (ZMUN); 1 ♂, same locality, 160 m, 26. IX. 1996, B. Tanaka leg. (ZMUN); 1 ♂), same locality, 160 m, 27. IX. 1996, Y. Arita leg. (genital preparation Nos GA-199 and 1752 YA) (ZMUN); 1 ♂, same locality, 250 m, 4. VI. 1997, Y. Okushima leg. (genital preparation Nos GA-232 and 1751 YA) (ZMUN); 6 ♂, same locality, 170–250 m, 10–11. VII. 1997, M. Owada leg. (NSMT); 1 ♂, same locality, 170–370 m, 27–29. IX. 1997, M. Owada leg. (NSMT); 1 ♂, same locality, 250 m, 24. IV. 1998, B. Tanaka leg. (ZMUN); 5 ♂, same locality, 370 m, 25. IV. 1998, Y. Arita leg. (ZMUN); 1 ♂, same locality, 370 m, 25. IV. 1998, B. Tanaka leg. (ZMUN); 6 ♂, same locality, 370 m, 26. IV. 1998, Y. Arita leg. (ZMUN); 1 ♂, same locality, 370 m, 26. IV. 1998, R. Matsumoto leg. (ZMUN); 5 ♂, same locality, 370 m, 26. IV. 1998, B. Tanaka leg. (COGM); 1 ♂, same locality, 370 m, 27. IV. 1998, Y. Arita leg. (ZMUN); 1 ♂, same locality, 370 m, 28. IV. 1998, Y. Arita leg. (ZMUN); 6 ♂, same locality, 370 m, 28. IV. 1998, B. Tanaka leg. (ZMUN); 7 ♂, same locality, 370 m, 29. IV. 1998, Y. Arita leg. (ZMUN, COGM); 21 ♂, same locality, 25–26. IV. 1998, Riefenstahl & Wagenblass leg. (CHR); 2 ♂, same locality, 370 m, 14. IX. 1998, and 1 ♂, same locality, 3. V. 1999, M. Ikeda leg. (CMI); 1 ♂, China, Guangxi, 6 km E Guilin, 4. IX. 1995/dry fields along river (coll. T. Garrevoet).

Etymology. This new species is dedicated to our friend, Mr B. Tanaka, an excellent lepidopterist (Toyota-shi, Aichi-ken, Japan), who aided in our research and collected a large part of the type series.

Aschistophleps Hampson

Aschistophleps Hampson, 1893: 188 (key), 200. Type species: *Aschistophleps lampropoda* Hampson, 1893, by original designation; Hampson, 1919: 52 (*part.*); Dalla Torre & Strand, 1925: 4; Gaede, 1933: 778 (*part.*); Heppner & Duckworth, 1981: 43 (*part.*); Fletcher & Nye, 1982: 18; Arita & Gorbunov, 1995: 136 (*part.*).

Redescription. Medium-sized, slender, long-legged clearwing moths with alar expanse 15–25 mm. Head with antenna strongly clavate, without cilia in male; frons smooth-scaled; labial palpus long, turned-up, somewhat exceeding upper margin of frons, smooth-scaled; proboscis long, well-developed, functional; vertex with setaceous and narrow elongated scales, not overlapping dorsal margin of frons; occipital fringe with hair-like scales dorsally and short setaceous scales laterally. Thorax smooth-scaled, posteriorly metaepimeron and metameron with hair-like scales. Legs with fore femur smooth-scaled, fore tibia tufted with elongated scales posteriorly; mid tibia and basal tarsomeres tufted with elongate scales; hind tibiae and basal tarsomeres with a tuft of elongated pointed scales. Abdomen smooth-scaled, anal tuft small, nearly undeveloped. Forewing with transparent areas well-developed, but densely covered with semi-hyaline scales; veins R_1 and R_2 parallel; vein R_5 missing (probably confluent with R_4); veins R_3 and R_4 arising from a common point (Fig. 10). Hindwing transparent, but distally densely covered with colored semi-hyaline scales; discal spot narrow, reaching vein M_3; vein M_2 arising from somewhat lower than midway of cross-vein; veins M_3 arising from somewhat before lower angle of cell; distance between base of vein CuA_1 and

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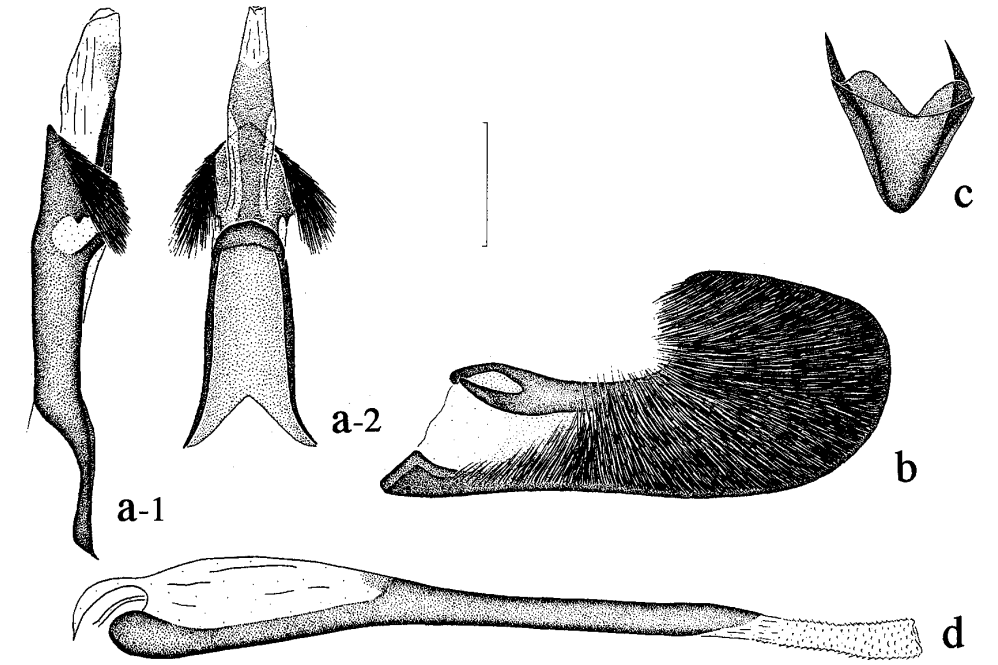

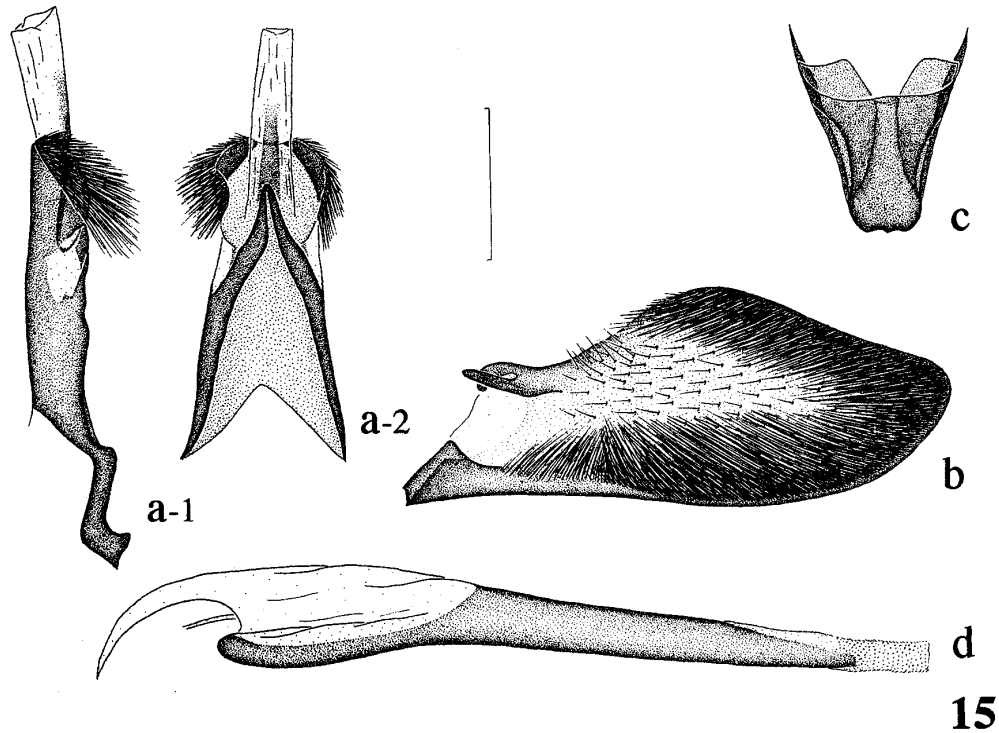

Figs 14–15. Male genitalia of Osminiini. 14. *Aschistophleps longipoda* Arita & Gorbunov, sp. nov., paratype (genital preparation Nos GA-233 and 1753 YA) (a-1: tegumen-uncus complex, lateral view, a-2: *ditto*, ventral view, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm. 15. *Pyrophleps vitripennis* Arita & Gorbunov, gen. et sp. nov., paratype (genital preparation Nos GA-234 and 1754 YA) (a-1: tegumen-uncus complex, lateral view, a-2: *ditto*, ventral view, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm.

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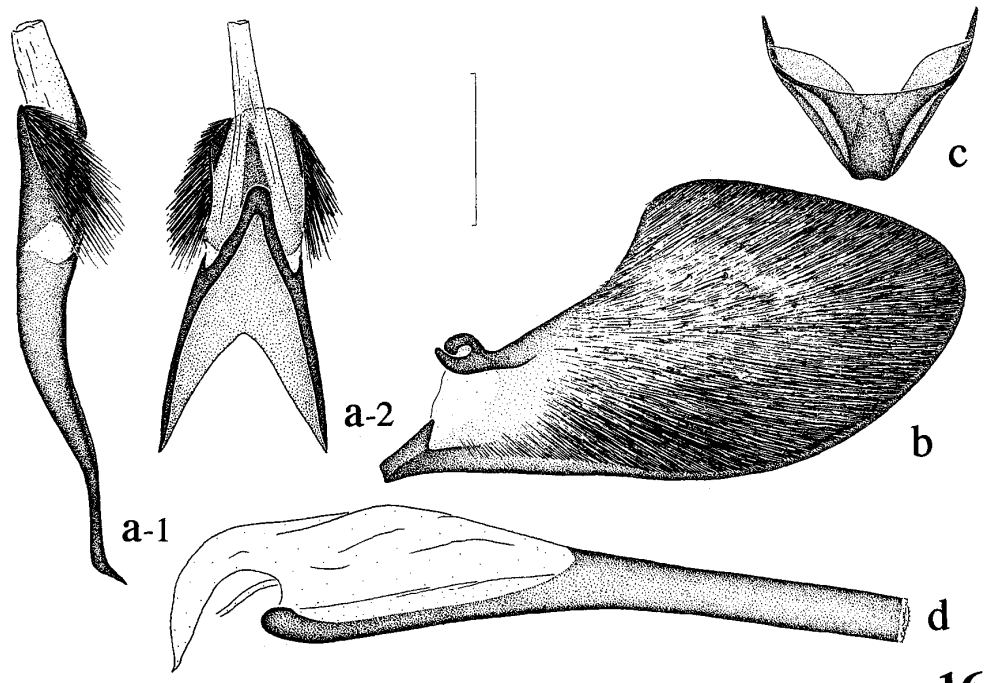

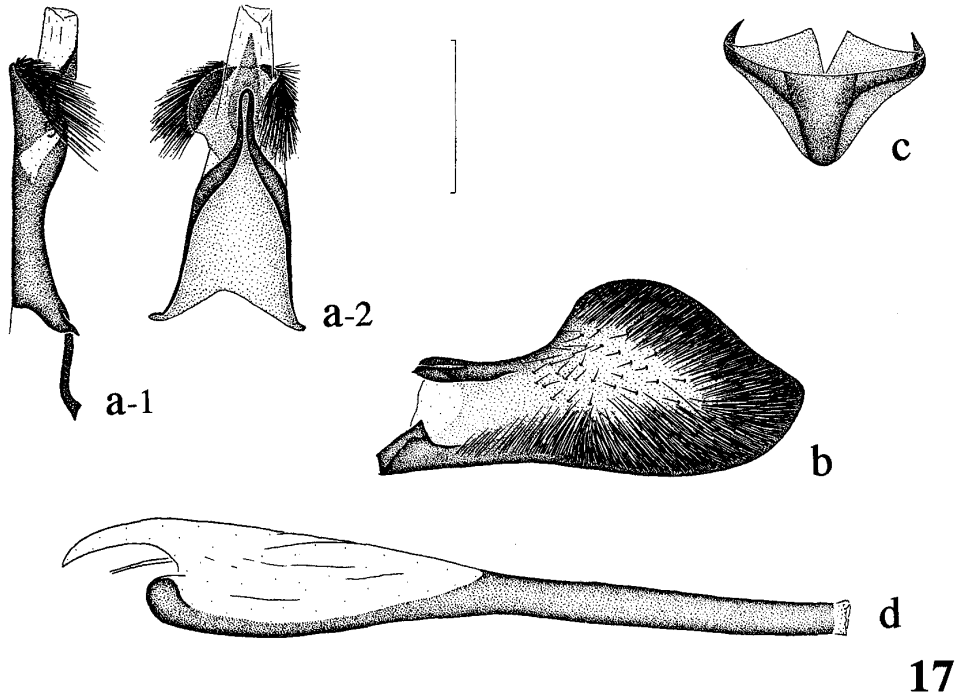

Figs 16–17. Male genitalia of *Pyrophleps* gen. et spp. nov. 16. *P. nigripennis* Arita & Gorbunov, gen. et sp. nov., paratype (genital preparation Nos GA-235 and 1755 YA) (a-1: tegumen-uncus complex, lateral view, a-2: *ditto*, ventral view, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm. 17. *P. cucphuonganae* Arita & Gorbunov, gen. et sp. nov., holotype (genital preparation Nos GA-237 and 1756 YA) (a-1: tegumen-uncus complex, lateral view, a-2: *ditto*, ventral view, b: valva, c: saccus, d: aedeagus). Scale bar: 0.5 mm.

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M_3 distinctly longer than that between base of vein M_3 and cross-vein; vein CuP slightly sclerotized basally; vein 1A well-developed, issuing from basal third of vein 2A; veins 2A and 3A short, fused distally (Fig. 10). Male genitalia (Fig. 14a–d) with tegumen-uncus complex narrow laterally but broad ventrally; uncus densely covered with long hair-like setae at ventro-apical margin; gnathos narrow and short; valva abruptly broadened in distal half, densely covered with long hair-like setae; saccus short, rounded basally, about as long as vinculum; aedeagus somewhat longer than length of valva; vesica with small, numerous, tile-shaped cornuti. Female genitalia unknown.

Differential diagnosis. Due to the conformation of the hind leg, *Aschistophleps* resembles *Pyrophleps* Arita & Gorbunov, gen. nov., but it can be distinguished by the structure of the hind leg tuft (hind tibiae with a narrow blade of elongated scales dorsally on distal half, besides this, hind tibia in distal half and two basal tarsomeres with a long blade of elongated scales internally in the genus compared) and male genitalia (different shape of gnathos and valva; *cp.* corresponding figures herein). From *Chamanthedon* Le Cerf, 1916 (type species: *Chamanthedon hypochroma* Le Cerf, 1916), this genus is easily separable by the well-developed proboscis (reduced in *Chamanthedon*), structure of the hind leg (not elongated in the genus compared), venation of the fore- (veins R_3 and R_4 long stalked in *Chamanthedon*) and hindwing (veins R_3 and CuA_1 short stalked in the genus compared, and by the structure of the male genitalia (*cp.* Fig. 14a–d with figs 10–12 in Arita & Gorbunov, 1998). From other Osminiini of the Oriental Region, *Aschistophleps* can be distinguished by various combinations of important characters, such as structure of the hind leg tuft, venation of the wings and male genitalia.

Biology. The larval biology is unknown. The species of the genus fly during April to July and September, possible being bivoltine.

Composition. At present, we include the following three species in this genus: *Aschistophleps lampropoda* Hampson, 1893 (the type species), *A. longipoda* Arita & Gorbunov, sp. nov. and *A. xanthocrista* Gorbunov & Arita, 1995.

Range. Oriental Region: India, Vietnam.

Aschistophleps longipoda Arita & Gorbunov, **sp. nov.** (Figs 5, 10, 14a–d)

Description. Male (holotype) (Fig. 5). Alar expanse 24.2 mm; body length 12.4 mm; forewing 11.0 mm; antenna 7.6 mm.

Head: antenna dorsally narrowly dark brown to black with dark purple-violet sheen, ventrally light brown with a narrow orange stripe distally on each joint; scapus dark brown with a few pale orange scales laterally; frons dark brown with admixture of pale orange scales laterally; labial palpus interior-ventrally pale orange, exterior-dorsally orange with a few black scales on apical joint; vertex entirely black with green sheen; occipital fringe orange dorsally and pale yellow laterally.

Thorax: patagia orange with a few pale yellow scales with golden hue laterally; tegula, meso- and metathorax dark brown to black with bronzed-green sheen, but densely covered with orange scales masking background coloration; thorax laterally dark gray-brown with bright green-violet sheen, with a large pale yellow spot anteriorly and with a few orange scales medially; posteriorly metaepimeron and metameron entirely pale yellow covered with pale yellow setaceous scales.

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Legs: neck plate pale yellow; fore coxa pale yellow; fore femur dark brown to black with green-purple sheen, with admixture of individual orange scales at posterior margin distally; fore tibia and fore tarsus entirely orange; mid coxa orange with a few dark brown to black scales with blue-violet sheen anteriorly; mid femur externally dark brown to black with strong green blue sheen, with admixture of pale orange scales at anterior margin, internally pale orange with admixture of black scales; mid tibia orange with a few dark brown to black scales with purple-bronzed sheen exteriorly both basally and distally; spurs entirely orange; mid tarsus orange with admixture of black scales at base of each tarsomere externally; hind coxa orange with a few dark brown to black scales with blue-violet sheen anteriorly; hind femur externally dark brown to black with blue-violet sheen, with admixture of orange and pale orange scales; internally pale yellow; hind tibia orange with pale yellow basal third, with a few dark brown scales with green sheen dorsally on basal third and with a few pale orange scales with strong electric green-violet hue at base of apical spurs exterior-dorsally; spurs entirely orange; hind basal tarsomere orange with a few pale yellow scales at base both externally and internally and with a narrow black ring with dark bronzed sheen distally; second tarsomere black with dark bronzed sheen, with admixture of orange scales interior-basally; remaining tarsomeres entirely black with dark bronzed-green sheen.

Abdomen: dorsally dark brown to black with dark purple sheen, but densely covered with orange scales masking background coloration; tergites 1–4 each pale yellow laterally; tergites 5–7 each black with purple sheen laterally; ventrally abdomen entirely pale yellow; anal tuft small, black with green-bronzed sheen, with admixture of orange scales.

Forewing: costal and anal margins, Cu-stem dark brown to black with greenish sheen, densely covered with orange scales masking background coloration; discal spot dark brown with dark green sheen, with admixture of orange scales proximally; veins within external transparent area dark brown with green-purple sheen; transparent areas well-developed but densely covered with semitransparent brownish scales with golden-green hue; external transparent area large but cells between veins R_3–Cu_1 divided into two narrow cells by a broad stripe orange proximally and dark brown with bronzed sheen distally; cilia dark brown with purple sheen.

Hindwing: transparent, but distal half densely covered with semitransparent brownish scales with golden-green hue; veins dark brown to black with purple sheen, with admixture of orange scales; discal spot narrow, orange with a few dark brown scales; outer margin narrow, about thrice as narrow as cilia; cilia dark brown with purple sheen, anally orange.

Male genitalia (paratype, genital preparation Nos GA-233 and 1753 YA) (Fig. 14a–d). Tegumen-uncus complex narrow laterally but broad ventrally (Figs 14a-1, 14a-2); uncus densely covered with long hair-like setae at ventro-apical margin; gnathos narrow and short (Fig. 14a-2); valva abruptly broadened in distal half, densely covered with long hair-like setae (Fig. 14b); saccus short and broad, rounded basally, slightly longer than vinculum (Fig. 14c); aedeagus (Fig. 14d) about 1.3 times as long as length of valva; vesica with small, numerous, tile-shaped cornuti.

Female. Unknown.

Individual variability. This species is nearly invariable in details of the coloration of various parts of the body, but old and not so fresh specimens are darker because missing the colored scales. However, it is rather variable in individual size: alar expanse 16.5–24.2 mm; body length 7.6–12.4 mm; forewing 7.5–11.0 mm; antenna 4.8–7.6 mm.

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Differential diagnosis. This new species seems to be closest to *A. lampropoda* Hampson, 1893, but it can be distinguished by the shape of the discal spot of the forewing (slightly broader in the species compared) and by the coloration of the hind leg tuft (hind tibia in distal half and basal tarsomere with a narrow black stripe exteriorly in *A. lampropoda*). From *A. xanthocrista* Gorbunov & Arita, 1995, *A. longipoda* Arita & Gorbunov, sp. nov. is easily separable by the presence of orange scales on the various parts of the body and by the structure of the male genitalia (valva without hair-like setae medially; saccus flat basally in *A. xanthocrista*; *cp.* original description and Fig. 14a–d with fig. 14a–c in Gorbunov & Arita, 1995*b*).

Bionomics. The host plant is unknown. Moths were collected in April, June–July and September. It is possible this new species has two generations per a year. The greater part of the type series has been captured with synthetic attractants.

Habitat. Borders of tropical forests, glades, forest roads.

Distribution. This species is known from the type locality only.

Material examined. Holotype, ♂ (Fig. 5), N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 170–250 m, 10–11. VII. 1997, M. Owada leg. (NSMT). Paratypes. 1 ♂, same locality, 160 m, 26. IX. 1996, Y. Arita leg. (genital preparation Nos GA-233 and 1753 YA) (ZMUN); 2 ♂, same locality, 160 m, 26. IX. 1996, Y. Utsunomiya leg. (ZMUN); 1 ♂, same locality, 250 m, 6. VI. 1997, Y. Arita leg. (ZMUN); 6 ♂, same locality, 170–250 m, 10–11. VII. 1997, M. Owada leg. (NSMT, COGM); 1 ♂, same locality, 370 m, 27–29. IX. 1997, M. Owada leg. (NSMT); 1 ♂, same locality, 370 m, 25. IV. 1998, Y. Arita leg. (ZMUN); 1 ♂, same locality, 370 m, 28. IV. 1998, Y. Arita leg. (ZMUN).

Etymology. The name of this new species, *longipoda*, partly derives from the closely related species, *A. lampropoda*, and corresponding to its superficial long-legged appearance.

Pyrophleps Arita & Gorbunov, **gen. nov.**

Type species: *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov.

Description. Medium-sized, slender, long-legged clearwing moths with alar expanse 15–22 mm. Head with antenna strongly clavate, without cilia in male; frons smooth-scaled; labial palpus long, turned-up and somewhat ahead, slightly exceeding upper margin of frons, mid and apical joints smooth-scaled ventrally and with elongated bristled scales dorsally or labial palpus entirely smooth-scaled; proboscis long, well-developed, functional; vertex with narrow elongated scales, not overlapping dorsal margin of frons; occipital fringe with hair-like scales dorsally and short setaceous scales laterally. Thorax smooth-scaled, posteriorly metepimeron and metameron with hair-like scales. Legs with fore femur smooth-scaled, but with slightly elongated scales posteriorly; fore tibia tufted with elongated scales posteriorly; mid tibia nearly smooth-scaled; hind tibiae with a narrow blade of elongated scales dorsally on distal half, besides this, hind tibia in distal half and two basal tarsomeres with a long blade of elongated scales internally. Abdomen smooth-scaled, anal tuft small, nearly undeveloped. Forewing with transparent areas well-developed or strongly reduced, densely covered with semi-hyaline scales; veins R_1 and R_2 parallel; vein R_5 missing (probably confluent with R_4); veins R_3 and R_4 arising from a common point (Fig. 11). Hindwing transparent or broadly opaque medially; if wing transparent then discal spot narrow, reaching vein M_3; vein M_2 arising from somewhat lower than midway of cross-vein; veins M_3 arising from somewhat before lower angle of cell; distance between base of veins CuA_1 and M_3 distinctly longer than

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that between base of vein M_3 and cross-vein; vein CuP slightly sclerotized basally; vein 1A well-developed, issues from basal third of vein 2A; veins 2A and 3A short, fused distally (Fig. 11).

Male genitalia (Figs 15a–d, 16a–d, 17a–d) with tegumen-uncus complex narrow laterally but broad ventrally; uncus with a semi-oval plate of long hair-like setae ventro-apically; gnathos narrow, long, distinctly protruding caudally; valva gradually broadened medially or in distal half, densely covered with long hair-like setae; saccus short, about as long as vinculum; aedeagus somewhat longer than length of valva; vesica with minute, numerous, tile-shaped cornuti. Female genitalia unknown.

Differential diagnosis. By the wing venation and structure of the hind legs this new genus seems to be closest to the previous one, but it can be distinguished by the presence of red or fire-red scales on various parts of the body, by the conformation of the hind leg tuft and by the structure of the male genitalia (compare the corresponding descriptions, "Differential diagnosis" for *Aschistophleps* and figures herein). From other genera of Osminiini of the Oriental Region, *Pyrophleps* Arita & Gorbunov, gen. nov. differs by the same details mentioned for the previous genus above.

Biology. The larval biology is unknown. The species of the genus fly during April to July and September, possible being bivoltine.

Constitution. At present, we include the following six species in this genus: *Pyrophleps nigripennis* Arita & Gorbunov, sp. nov. (the type species), *P. vitripennis* Arita & Gorbunov, sp. nov., *P. ruficrista* (Rothschild, 1912), comb. nov., *P. cucphuonganae* Arita & Gorbunov, sp. nov., *P. haematochrodes* (Le Cerf, 1912), comb. nov., and *P. cruentata* (Swinhoe, 1896), comb. nov.

Range. Oriental Region: India, Vietnam, Malaysia (Borneo, Sabah).

Etymology. The name of this new genus *Pyrophleps* partly derives from a closely related genus *Aschistophleps* and from the Greek word "pyros" meaning fire, and corresponding to the coloration of some parts of the body of moths included in the genus. Gender is feminine.

Pyrophleps nigripennis Arita & Gorbunov, **sp. nov.** (Figs 8, 11, 16a–d)

Description. Male (holotype) (Fig. 8). Alar expanse 19.1 mm; body length 11.3 mm; forewing 8.6 mm; antenna 5.3 mm.

Head: antenna dorsally dark brown to black with dark purple sheen, ventrally light brown densely covered with orange scales; scapus entirely dark brown with greenish sheen; frons entirely dark gray-brown with bronzed-purple sheen; labial palpus ventrally smooth-scaled, dorsally mid and apical joints with somewhat elongated bristled scales; interior-ventrally white with a few black and orange scales on apical joint internally, externally and dorsally black with purple sheen; vertex dark brown to black with greenish sheen, with admixture of dirty orange scales; occipital fringe dorsally pale yellow-orange, laterally mixed with black and white setaceous scales.

Thorax: patagia, tegula and mesothorax dark brown to black with bronzed-green sheen; metathorax dark brown to black with bronzed-green sheen, with a tuft of white hair-like scales laterally; thorax laterally dark brown to black with strong purple-green sheen; posteriorly metepimeron and metameron dark gray-brown with a few white scales, covered with sparse, white, hair-like scales.

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Legs: neck plate white with golden hue internally and dark brown to black with purple-green sheen externally; fore coxa white with golden hue with a few yellow-orange and dark brown scales exterior-basally; fore femur entirely dark brown to black with bronzed-purple sheen; fore tibia dark brown to black with bronzed-purple sheen, with a few pale yellow-orange scales posterior-basally; fore tarsus dark brown to black with purple sheen, with a few white scales on four distal tarsomeres exterior-basally; mid coxa white with golden hue, with a few dark brown with bronzed-green scales externally; mid femur dark brown to black with violet-green sheen; mid tibia dark brown to black with strong bronzed-purple sheen, with admixture of pale yellow-orange scales on basal half distally and a few fire-red scales dorso-subdistally; spurs dark brown to black with purple-green sheen externally and white internally; mid tarsus dark brown to black with purple-bronzed sheen, with admixture of white scales at base on each tarsomere interior-ventrally; hind coxa white with golden hue, with a few dark brown with bronzed-green scales externally; hind femur dark brown to black with violet-green sheen; hind tibia dark brown to black with strong purple-green sheen, internally white from base of tibia to base of mid spurs and brick-red from base of mid spurs to apex; externally with an elongate narrow fire-red to brick-red stripe, with a small white spot at base of mid spurs; spurs white with admixture of dark brown scales with bronzed sheen externally; hind tarsus dark brown to black with strong purple-green sheen; basal tarsomere narrowly white basally and with fire-red to brick-red scales on basal half internally.

Abdomen: dorsally dark brown to black with bright bronzed-green sheen; tergites 2–4, 6–7 each with admixture of individual white scales laterally at distal margin; ventrally dark brown with bronzed sheen; sternite 1+2 mixed with white scales proximally; sternites 3–6 each with admixture of yellow-orange scales laterally; sternites 1–6 each with a narrow white stripe distally; anal tuft small, black with bronzed sheen.

Forewing: dorsally dark brown to black with bronzed-purple sheen; transparent areas small, covered with semi-hyaline scales with electric green-blue sheen; anterior and posterior transparent areas short and narrow, not reaching level of discal spot of hindwing; external transparent area narrow, divided into seven narrow and short cells; ventrally entirely dark brown with strong bronzed sheen with a few whitish scales between R-stem and vein Sc distally; cilia dark brown with golden-bronzed sheen.

Hindwing: transparent, but distal half densely covered with brownish semi-hyaline scales with electric blue sheen; veins, discal spot and outer margin dark brown to black with purple-bronzed sheen; discal spot broad, reaching base of vein M_3; outer margin rather broad, as broad as cilia; cilia dark brown with golden-bronzed sheen, anally white.

Male genitalia (paratype, genital preparation Nos GA-235 and 1755 YA) (Fig. 16a–d). Tegumen-uncus complex narrow laterally (Fig. 16a-1) but broad ventrally; uncus with a semi-oval plate of long hair-like setae ventro-apically; gnathos narrow, long, distinctly protruding caudally (Fig. 16a-2); valva gradually broadened in distal half, rounded distally, densely covered with short and long hair-like setae (Fig. 16b); saccus short but broad, about as long as vinculum, slightly bifurcate basally (Fig. 16c); aedeagus slightly longer than length of valva (Fig. 16d); vesica with minute, numerous, tile-shaped cornuti.

Female. Unknown.

Individual variability. This new species varies slightly in individual size: alar expanse 17.0–21.9 mm; body length 9.2–12.5 mm; forewing 7.2–9.7 mm; antenna 4.6–6.3 mm. Besides that, some specimens display more numerous white scales on the metepimeron and metameron proximally and white and yellow-orange scales on the abdomen. Additionally, the

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external transparent area of the forewing is rather variable. It varies both in the number of cells (sometimes the transparent area is divided into nine cells, but sometimes it consists of a single, very narrow, hyaline stripe between veins M_2 and M_3 only) and in size, but always its width is less than that of the apical area.

Differential diagnosis. Superficially this new species is very similar to *P. vitripennis* Arita & Gorbunov, sp. nov., but by the conformation of the male genitalia it seems to be closest to *P. cucphuonganae* Arita & Gorbunov, sp. nov. From *P. vitripennis* Arita & Gorbunov, sp. nov., *P. nigripennis* Arita & Gorbunov, sp. nov. can be distinguished by the structure of the labial palpus (smooth-scaled in the species compared) and the transparent areas of the forewing (anterior and posterior transparent areas exceeding level of discal spot of hindwing; external transparent area relatively broad, divided into ten narrow cells, distinctly broader than apical area in *P. vitripennis* Arita & Gorbunov, sp. nov.), by the coloration of the hind leg tuft (with brick-orange scales interior-distally only in the species compared) and forewing ventrally (with admixture of yellow-orange scales on R-stem in *P. vitripennis* Arita & Gorbunov, sp. nov.). Besides this, these two new species are easily separable by the conformation of the male genitalia (*cp.* Fig. 16a–d with 15a–d herein). From *P. ruficrista* (Rothschild, 1912), comb. nov., *P. nigripennis* Arita & Gorbunov, sp. nov. can be separated by the structure of the transparent areas of the forewing (well-developed, broad in the species compared), by the somewhat narrower discal spot of the hindwing and by the size of the outer margin of the hindwing (more broad, distinctly broadened between veins CuP and 1A in *P. ruficrista*). From other congeners, namely *P. cucphuonganae* Arita & Gorbunov, sp. nov., *P. haematochrodes* (Le Cerf, 1912), comb. nov., and *P. cruentata* (Swinhoe, 1896), comb. nov., this new species clearly differs also by the less developed transparent areas of the forewing (for example, compare Fig. 8 with Fig. 6 herein), entirely transparent hindwing (mostly opaque in these species compared) and by the absence of red colored scales on the wings (with a dense admixture of red scales in all these species compared). Additionally, *P. nigripennis* Arita & Gorbunov, sp. nov., is easily separated from *P. cucphuonganae* Arita & Gorbunov, sp. nov. by the conformation of the male genitalia (*cp.* Fig. 16a–d with Fig. 17a–d).

Bionomics. The host plant is unknown. Moths were netted in March–April, June–July and September. It is possible this new species has two generations per a year. Majority of specimens of the type-series has been captured with chemical pheromones.

Habitat. Borders of tropical forests, glades, forest roads.

Distribution. This new species is known from Laos and Vietnam.

Material examined. Holotype ♂ (Fig. 8), N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 250 m, 5. VI. 1997, B. Tanaka leg. (ZMUN). Paratypes. 1 ♂, N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 160 m, 27. IV. 1996, B. Tanaka leg. (ZMUN). 1 ♂, same locality, 160 m, 24. IX. 1996, B. Tanaka leg. (ZMUN); 1 ♂, same locality, 160 m, 25. IX. 1996, Y. Arita leg. (ZMUN); 2 ♂, same locality, 160 m, 25. IX. 1996, Y. Utsunomiya leg. (ZMUN); 4 ♂, same locality, 160 m, 27. IX. 1996, Y. Arita leg. (ZMUN); 1 ♂, same locality, 250 m, 4. VI. 1997, R. Matsumoto leg. (ZMUN); 1 ♂, same locality, 250 m, 5. VI. 1997, Y. Okushima leg. (ZMUN); 1 ♂, same locality, 250 m, 5. VI. 1997, M. Takahashi leg. (ZMUN); 6 ♂, same locality, 250 m, 5. VI. 1997, B. Tanaka leg. (ZMUN); 5 ♂, same locality, 250 m, 6. VI. 1997, Y. Arita leg. (ZMUN); 1 ♂, same locality, 250 m, 6. VI. 1997, Y. Okushima leg. (ZMUN); 3 ♂, same locality, 250 m, 6. VI. 1997, B. Tanaka leg. (ZMUN); 21 ♂, same locality, 170–250 m, 10–11. VII. 1997, M. Owada leg. (NSMT); 6 ♂, same locality,

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250 m, 23. IV. 1998, R. Matsumoto leg. (ZMUN); 1 ♂, same locality, 250 m, 23. IV. 1998, B. Tanaka leg. (ZMUN); 1 ♂, same locality, 370 m, 24. IV. 1998, R. Matsumoto leg. (ZMUN); 10 ♂, same locality, 250 m, 24. IV. 1998, Y. Arita leg. (COGM); 19 ♂, same locality, 370 m, 25. IV. 1998, Y. Arita leg. (ZMUN); 14 ♂, same locality, 370 m, 25. IV. 1998, Y. Arita leg. (COGM); 2 ♂, same locality, 370 m, 25. IV. 1998, T. Hirowatari leg. (ZMUN); 11 ♂, same locality, 370 m, 25. IV. 1998, B. Tanaka leg. (ZMUN); 2 ♂, same locality, 370 m, 26. IV. 1998, Y. Arita leg. (ZMUN); 77 ♂, same locality, 370 m, 26. IV. 1998, Y. Arita leg. (COGM); 1 ♂, same locality, 370 m, 26. IV. 1998, B. Tanaka leg. (ZMUN); 33 ♂, same locality, 370 m, 28. IV. 1998, B. Tanaka leg. (COGM); 17 ♂, same locality, 370 m, 29. IV. 1998, Y. Arita leg. (one male with genital preparation Nos GA-235 and 1755 YA) (ZMUN); 7 ♂, same locality, 370 m, 29. IV. 1998, B. Tanaka leg. (ZMUN); 1 ♂, Central Laos, Lak Sao, 14. III. 1996, S. Osada leg. (ZMUN).

Etymology. The name of this new species is derived from Latin "niger" for black and "pennis" for wing, corresponding to the ground coloration of the nearly opaque forewings.

Pyrophleps vitripennis Arita & Gorbunov, **sp. nov.** (Figs 7, 15a-d)

Description. Male (holotype) (Fig. 7). Alar expanse 18.9 mm; body length 11.7 mm; forewing 8.6 mm; antenna 6.0 mm.

Head: antenna dorsally dark brown to black with dark purple sheen, ventrally light brown with admixture of dark orange scales; scapus entirely dark brown with bronzed-green sheen; frons entirely dark gray-brown with greenish sheen; labial palpus smooth-scaled, basal joint white to pale cream; medial joint basally and interior-ventrally pale cream with purple-bronzed hue with a few dark orange scales distally, exterior-dorsally dark brown with green-bronzed sheen; apical joint dark brown with green-bronzed sheen, with a few dark orange scales internally; vertex dark brown to black with green-bronzed sheen; occipital fringe orange dorsally and pale orange laterally.

Thorax: patagia dark brown to black with purple-bronzed sheen, with a few orange scales laterally; tegula and mesothorax dark brown to black with bronzed-green sheen; metathorax dark brown to black with bronzed-green sheen, with a tuft of white hair-like scales laterally; thorax laterally dark gray-brown with strong green-blue sheen, with a large whitish to pale cream spot with golden hue medially; posteriorly metepimeron and metameron dark gray-brown with bronzed-green sheen, with a few white scales, covered with sparse, white, hair-like scales.

Legs: neck plate white with golden hue internally and dark gray-brown with green-blue sheen externally; fore coxa white with golden hue, exterior-basally narrowly dark brown to black with green-violet sheen; fore femur entirely dark brown to black with green-violet sheen; fore tibia dark brown to black with green-bronzed sheen, with a large white spot dorso-basally; fore tarsus dark brown with green-violet sheen, with a large white spot on each tarsomere at base ventrally; mid coxa white with golden hue; mid femur dark brown to black with green-violet sheen externally and dark gray-brown with bronzed sheen internally; mid tibia dark brown to black with green-violet sheen, with admixture of white scales with electric light green-blue hue on basal half interior-dorsally; spurs white with admixture of dark brown scales with bronzed-violet sheen externally; mid tarsus dark brown to black with green-violet sheen, with a narrow white ring basally on basal tarsomere, and with a large white spot interior-ventrally at base on each tarsomere; hind coxa white with golden hue, with a few dark brown with green-violet scales externally; hind femur dark green-brown with

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strong green-purple sheen, with a few white setaceous scales at posterior margin basally; hind tibia dark brown to black with strong green sheen, with a narrow white stripe interior-ventrally from base of tibia to base of mid spur, with a narrow white ring at base of mid spurs, and with brick-orange scales interior-distally; medial spurs white with a few dark brown scales with bronzed sheen distally, exterior-apical spur white internally and dark brown with green sheen externally, interior-apical spur brick-red internally and white and dark brown with purple sheen externally; hind tarsus dark brown to black with strong bronzed-green sheen; basal tarsomere narrowly white basally and with brick-red scales internally.

Abdomen: dorsally dark brown to black with bronzed-green sheen; tergites 5–7 each with admixture of individual white scales laterally at distal margin; ventrally dark brown with bronzed sheen, mixed with white scales medially on three basal sternites; each sternite with a narrow white stripe distally; anal tuft small, dark brown to black with bronzed sheen.

Forewing: dorsally dark brown to black with dark purple-green sheen; transparent areas relatively well-developed, covered with brownish semi-hyaline scales with electric blue sheen; anterior and posterior transparent areas long and narrow, exceeding level of discal spot of hindwing; external transparent area relatively broad, divided into ten narrow cells; apical area dark brown with bronzed sheen, relatively narrow, slightly broader than cilia; cilia dark brown with purple-bronzed sheen; ventrally dark brown with strong bronzed sheen, with admixture of yellow-orange scales on R-stem.

Hindwing: transparent, but distal half densely covered with brownish semi-hyaline scales with electric blue sheen; veins, discal spot and outer margin dark brown to black with bronzed-purple sheen; discal spot broad, reaching base of vein M_3; outer margin rather broad, slightly broader than cilia; cilia dark brown with golden-bronzed sheen, anally white.

Male genitalia (paratype, genital preparation Nos GA-234 and 1754 YA) (Fig. 15a–d). Tegumen-uncus complex narrow laterally (Fig. 15a-1) but broad ventrally; uncus with a semi-oval plate of long hair-like setae ventro-apically; gnathos narrow, long, distinctly protruding caudally (Fig. 15a-2); valva gradually broadened medially, at margins broadly covered with short and long hair-like setae and with individual setae on medial part (Fig. 15b); saccus short but broad, slightly longer than vinculum (Fig. 15c); aedeagus slightly longer than length of valva (Fig. 15d); vesica with minute, numerous, tile-shaped cornuti.

Female. Unknown.

Individual variability. This new species varies in the number of the orange scales on the patagia laterally and white scales on the abdomen. Additionally, it is slightly variable in individual size: alar expanse 15.3–18.9 mm; body length 10.0–11.7 mm; forewing 7.0–8.6 mm; antenna 4.8–6.0 mm.

Differential diagnosis. Superficially this new species looks like the previous species, but by the conformation of the male genitalia *P. vitripennis* Arita & Gorbunov, sp. nov. seems to be closest to *P. cucphuonganae* Arita & Gorbunov, sp. nov. From *P. nigripennis* Arita & Gorbunov, sp. nov., *P. vitripennis* Arita & Gorbunov, sp. nov. is distinguishable by various combinations of important characters mentioned in the "Differential diagnosis" for the previous species. From *P. ruficrista* (Rothschild, 1912), this new species differs by the somewhat narrower external transparent area of the forewing and outer margin of the hindwing (distinctly broadened between veins CuP and 1A in *P. ruficrista*), and by the coloration of the hind tibia (dark brown to black with strong purple-green sheen, internally white in basal half and brick-red in distal half in the species compared). From other

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congeners, namely *P. cucphuonganae* Arita & Gorbunov, sp. nov., *P. haematochrodes* (Le Cerf, 1912), and *P. cruentata* (Swinhoe, 1896), this new species clearly differs by the entirely hyaline hindwing (mostly opaque in these species compared) and by the absence of red colored scales on the wings (with a dense admixture of red scales in all these species compared).

Bionomics. The host plant is unknown. Moths were collected in April and June–July with synthetic attractants.

Habitat. Borders of tropical forests, glades, forest roads.

Distribution. This new species is known only from the type locality in North Vietnam.

Material examined. Holotype. ♂ (Fig. 7), N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 250 m, 5. VI. 1997, B. Tanaka leg. (ZMUN). Paratypes. 1 ♂, same locality, 250 m, 4. VI. 1997, R. Matsumoto leg. (ZMUN); 1 ♂, same locality, 250 m, 5. VI. 1997, Y. Okushima leg. (ZMUN); 1 ♂, same locality, 250 m, 5. VI. 1997, B. Tanaka leg. (ZMUN); 3 ♂, same locality, 170–250 m, 10–11. VII. 1997, M. Owada leg. (NSMT, COGM); 1 ♂, same locality, 250 m, 24. IV. 1998, Y. Arita leg. (COGM); 1 ♂, same locality, 250 m, 24. IV. 1998, B. Tanaka leg. (ZMUN); 2 ♂, same locality, 370 m, 29. IV. 1998, Y. Arita leg. (one male with genital preparation Nos GA-234 and 1754 YA) (ZMUN).

Etymology. The name of this species is taken from Latin "vitrea" for of glass or vitreous and "pennis" for wing, and referring to the relatively transparent forewings of the species.

Pyrophleps cucphuonganae Arita & Gorbunov, **sp. nov.** (Figs 6, 17a–d)

Description. Male (holotype) (Fig. 6). Alar expanse 16.2 mm; body length 9.5 mm; forewing 7.4 mm; antenna 5.3 mm.

Head: antenna dark brown to black with dark purple sheen, densely mixed with brick-red scales; scapus dark brown to black with bronzed sheen; frons entirely dark brown to black with strong bronzed-green sheen; labial palpus basally white with admixture of black and brick-red scales, distally black mixed with brick red scales; vertex dark brown to black with strong bronzed-green sheen; occipital fringe dorsally mixed with black and brick-red scales, laterally white.

Thorax: patagia dark brown to black with bronzed-green sheen, with admixture of brick-red scales anteriorly; tegula dark brown to black with dark bronzed-purple sheen, densely covered with brick-red scales, masking background coloration; mesothorax dark brown to black with dark bronzed-purple sheen; metathorax dark brown to black with dark bronzed-purple sheen, with a tuft of white and dark brown hair-like scales laterally; thorax laterally dark brown with strong green-purple sheen, with a narrow white stripe at distal margin of mesomeron; posteriorly metepimeron and metameron dark gray-brown with bronzed sheen, with admixture of white scales basally, densely covered with white, long, hair-like scales.

Legs: neck plate externally dark brown to black with bright bronzed sheen, internally white with golden hue; fore coxa white with golden hue, with a short and narrow dark brown to black stripe with purple sheen exterior-basally and with admixture of gray-brown scales medially; fore femur entirely dark gray brown with purple-bronzed sheen; fore tibia dark brown to black with bronzed-purple sheen, with admixture of brick-red scales at posterior margin; dorsally four basal fore tarsomeres basally red-orange, distally dark brown to black with purple sheen; ventrally four basal tarsomere yellow-orange with a few dark brown scales

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distally; apical tarsomere yellow-orange ventrally and narrowly black with purple sheen dorsally; mid coxa white with golden-green hue; mid femur entirely dark gray brown with purple-bronzed sheen; mid tibia dark brown to black with bright blue-purple sheen, externally with admixture of brick-red scales medially; spurs dark brown to black with bronzed sheen; basal mid tarsomere white basally and dark brown to black with bronzed-purple sheen distally; 2nd–4th mid tarsomeres basally yellow-orange and dark brown to black with bronzed-purple sheen distally; apical tarsomere yellow-orange ventrally and narrowly dark brown to black with bronzed-purple sheen dorsally; hind coxa anteriorly dark brown to black with bronzed-purple sheen, posteriorly white with bronzed hue; hind femur entirely dark gray brown with purple-bronzed sheen; hind tibia brick-red with a narrow dark brown to black ring with strong electric blue-green sheen basally, with a narrow, transverse, white stripe both at base of mid spurs and distally and with a large, elongate, black spot with strong electric green sheen at base of apical spurs both externally and internally; spurs dark brown to black with purple-bronzed sheen, basally with admixture of white scales with electric blue hue; hind tarsus dorsally ringed narrowly with dark brown to black with bright greenish sheen; ventrally each tarsomere brick-red to brick-orange with a small dark brown to black spot with greenish sheen.

Thorax: dorsally dark brown to black with dark bronzed sheen, each tergite densely covered with brick-red scales both laterally and proximally; tergites 2–7 with a narrow, gray-brown, distal stripe with electric green-blue sheen; ventrally sternite 1+2 white with golden hue basally and dark brown with bronzed-purple sheen distally; remaining sternites dark brown with bronzed-purple sheen, with a narrow, white stripe with a golden hue distally; anal tuft small, dark brown with bronzed sheen, mixed with brick-orange scales.

Forewing: basally dark brown to black with bronzed sheen; costal and anal margins dark brown to black with dark purple-green sheen, with admixture of brick-red scales on basal half; Cu-stem dark brown to black with dark green sheen, with a few brick-red scales basally; discal spot dark brown to black with dark greenish sheen, with a few brick-red scales distally at costal margin; apical area narrow, about as narrow as cilia, dark brown to black with dark purple sheen, with a few brick-red scales; anterior and posterior transparent areas relatively long, narrow, covered with hyaline scales with electric green sheen; external transparent area extremely large, divided into nine cells (cells between veins R_{4+5}–M_1, M_1–M_2, M_2–M_3 and M_3– CuA_1 additionally divided into two parts by a thin longitudinal stripe); cilia dark brown to black with purple sheen.

Hindwing: Cu-stem and veins CuP and 1A brick-red basally and dark brown to black with dark bronzed-green sheen distally; discal spot extremely broad, dark brown to black with dark bronzed-green sheen; space between veins CuA_1–CuA_2 entirely opaque, dark brown to black with dark bronzed-green sheen; space between CuA_2 and CuP opaque in distal third, dark brown to black with dark bronzed-green sheen; space between vein CuP and anal margin opaque in distal half, dark brown to black with dark bronzed-green sheen distally and brick-red to brick-orange proximally; outer margin costally of vein CuA_1 rather broad, somewhat broader than cilia, dark brown to black with dark bronzed-green sheen; cilia dark brown to black with purple sheen, anally brick-red.

Male genitalia (holotype, genital preparation Nos GA–237 and 1756 YA) (Fig. 17a–d). Tegumen-uncus complex narrow laterally (Fig. 17a-1) but broad ventrally; uncus with a semi-oval plate of long hair-like setae ventro-apically; gnathos narrow, long, distinctly protruding caudally (Fig. 17a-2); valva gradually broadened medially, at margins broadly covered with short hair-like setae, with a few long setae at sacculus and with individual setae

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on medial part (Fig. 17b); saccus short but broad, about as long as vinculum (Fig. 17c); aedeagus relatively long, about 1.5 times as long as valva (Fig. 17d); vesica with minute, numerous, tile-shaped cornuti.

Female. Unknown.

Individual variability. Unknown.

Differential diagnosis. Superficially this new species seems to be closest to *P. haematochrodes* (Le Cerf, 1912), and *P. cruentata* (Swinhoe, 1896). From the first species compared, *P. cucphuonganae* Arita & Gorbunov, sp. nov. can be distinguished only by the more broad discal spot and outer margin between veins CuA_1 and 1A of the hindwing. From the second species compared, this new species is separable by the size and coloration of the discal spot of the hindwing (broader and with more numerous brick-red to brick-orange scales in *P. cruentata*) and by the broad outer margin between veins CuA_1–CuP of the hindwing (surface between veins CuA_1 and CuP entirely hyaline and outer margin here nearly undeveloped in the species compared). From *P. nigripennis* Arita & Gorbunov sp. nov. and *P. vitripennis* Arita & Gorbunov, sp. nov., *P. cucphuonganae* Arita & Gorbunov, sp. nov. differs in numerous characters, which have already been cited in the "Differential diagnosis" for the corresponding species above (*cp.* also the corresponding descriptions herein).

Bionomics. The host plant is unknown. The holotype specimen was collected in the end of April.

Habitat. Borders of tropical forests.

Distribution. This new species is known only from the type locality in North Vietnam.

Material examined. Holotype. ♂ (Fig. 6), N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 370 m, 25. IV. 1998, Y. Arita leg. (genital preparation Nos GA-237 and 1756 YA) (ZMUN).

Etymology. This species is named after Cuc Phoung, the name of the type locality.

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摘　　要

ベトナム産 Osminiini 族 (鱗翅目, スカシバガ科) の新知見 (有田　豊・Oleg G. Gorbunov)

北ベトナムで得られたスカシバガ科の Osminiini 族の 6 種を報告した.

Vietomelittia Gorbunov, 1988

属 *Vietomelittia* は Arita & Gorbunov によって 1995 年に *Heterosphecia* Le Cerf, 1916 のシノニムとされたが, 多くの標本による再調査の結果, ここで有効名として再度復活させた.

Vietomelittia soljanikovi Gorbunov, 1988 (Figs 1-2, 9, 12a-d)

Vietomelittia 属のタイプ種でベトナムからのみ知られている. 色彩変異は知られていない. 成虫は合成性フェロモンに飛来するが成分は特定されていない.

Vietomelittia bantanakai sp. nov. (Figs 3-4, 13a-d)

前種に非常によく似ている. 本種は図示 (Fig. 4) したように胸部側面に大きな橙黄色の紋があるが, 前種 (Fig. 2) ではそのような紋を欠く. 本種も合成性フェロモンに良く飛来するが成分は特定されていない.

Aschistophleps Hampson, 1893

後脚跗節が非常に長い特異なスカシバガのグループである. アッサムから記載された *A. lampropoda* Hampson, 1893 の他に, ベトナムから次の新種を含めて 2 種類が知られている.

Aschistophleps longipoda sp. nov. (Figs 5, 10, 14a-d)

アッサムから記載された *A. lampropoda* に非常によく似ているが, 前翅横脈紋がより大きいことで区別される.

Pyrophleps gen. nov.

この新属は前属の *Aschistophleps* 属によく似るが, 後脚脛節の背面後半分と跗節基部 2 節の背面に長い

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毛状鱗片を欠くことで区別される．また雄ゲニタリアも異なる．ここで新しく記載した3新種のほかに，*P. ruficrista* (Rothschild, 1912), comb. nov., *P. haematochrodes* (Le Cerf, 1912), comb. nov. および *P. cruentata* (Swinhoe, 1896), comb. nov. の3既知種をふくめて6種類が知られている．

Pyrophleps nigripennis sp. nov. (Figs 8, 11, 16a–d)

次種 *P. vitripennis* sp. nov. に極めてよく似ているが，前翅の中室外方透明紋が極めて小さく，前翅の黒色部分が大きい．北ベトナムのクックホン自然国立公園では個体数が多く，成分は特定されていないが，合成性フェロモンに極めて多数が飛来した．

Pyrophleps vitripennis sp. nov. (Figs. 7, 15a–d)

本種は酷似する前種 *P. nigripennis* と同所で採集されているが，個体数ははるかに少ない．本種は，前種 *P. nigripennis* の個体変異と考えられたが，雄ゲニタリアも全く異なることから別種と判断した．

Pyrophleps cucphuonganae sp. nov. (Figs 6, 17a–d)

本種はベトナム（トンキン）から記載された *P. haematochrodes* (Le Cerf, 1912) やインド（カシス）から記載された *P. cruentata* (Swinhoe, 1896) によく似ている．*P. haematochrodes* からは前後翅の中室紋が大きいことで容易に区別される．また *P. cruentata* からは前後翅の中室紋が赤くならないことで区別される．本種はクックホン自然国立公園で1雄得られたのみである．

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